NAQCC News

Dec 6, 2008	NAQCC Web Site	Issue #084

In this issue:

1. December Sprint.
1a. November Sprint Results
2. November Challenge Results
3. General Club News
3a. KX1 Project - Part II
4. CW Cartoon of the Month
5. Member News

1. SPRINT: Our sprint is this Tuesday evening, December 9th 8:30-10:30 PM EST (Wednesday 0130-0330Z).

Our special award certificate has a Christmas theme. Be the highest scorer in one of our divisions who is able to make the word CHRISTMAS from letters in the calls of stations you work, and you're entered into the drawing for the certificate. Thus we'll have a maximum of 5 entrants, one from each division.

If you're entering one of our sprints for the first time, we welcome you and hope you will be a regular participant from now on. Last month we welcomed N1GKE, KG1W, N7RVD, KD5KJ, N8JIW, KD5MM, N0EVH, VE3MM as first time participants and/or log submitters.

Remember this is only a brief overview of the coming sprint. Be sure to read and understand the full general sprint rules and any specific rules for this month's sprint here.

1a NOVEMBER SPRINT RESULTS: Since our last newsletter was a special issue without space for our sprint results, here they are now.

It was another of our infamous 'black hole' sprints with certain areas of the country (the Northeast most notably) experiencing just about the worst conditions ever in one of our sprints. Then entrants from other parts of the country (the Southeast most notably) raved about the very good conditions they had. Looking at the results and knowing where the listed stations were located depicts this very well. As a result of the 'black hole' phenomenon, our stats were down somewhat, but still very impressive - even more so considering the conditions. Of note in the stats is the percentage of logs submitted via the autologger - a whopping 94 percent this month. That sure made the listing of results very easy and quick this month. Thank you.

I hope you all had a look at the very interesting homebrew keys used in the sprint. If you missed them, look on the November sprint results page.

STATS - current month, previous month, all time record, mo/yr (blue indicates a record set this month):

	Nov	Oct	Rec	Month
Logs -	50	54	64	9/08
Autologger logs -	47	57	57	9/08
Stns in logs -	80	92	110	5/08
Hour 1 QSO's -	268	320	564	9/08
Hour 2 QSO's -	244	262	476	9/08
Total QSO's -	502	582	1040	9/08
20M QSO's -	4	3	185	6/08
40M QSO's -	100	131	709	9/08
80M QSO's -	408	448	481	12/07

WINNERS:

1st SWA East - K4BAI
1st SWA Central - W5AG
1st SWA Mountain - N7RVD
1st SWA Pacific - NU7T
1st Gain - VE3MM (non-member not eligible for a certificate)

Special Award (using a homebrew straight key) Drawing Entrants:
W2JEK
Drawing Winner: W2JEK

"Uncle Cy - The LED Guy" $25.00 gift certificate to a drawing among all who used a homebrew straight key
Drawing entrants: K3WWP, VE3HUR, KA2KGP, N8XMS, N9AKF, W2JEK
Drawing winner: N8XMS

Congratulations to all including winners and non-winners. Actually everyone who participated and sent in a log is a winner because that shows the ham radio world that there are many folks still using and enjoying CW on the ham bands. That's one of our main goals here at the NAQCC.

Very special thanks to those who reported their results even though they made only a few QSO's. Your reports are important also.

We had 5 stations who didn't submit a log show up 5 or more times in the 50 logs we received and cross-checked. Hopefully those 5 and many others will be back next month AND submit a log. Remember submitting a log doubles the strength of your statement that you support CW operation.

We welcome these hams who submitted a sprint log for the first time. We hope they will continue to participate and report their results:
N1GKE, KG1W, N7RVD, KD5KJ, N8JIW, KD5MM, N0EVH, VE3MM

Full sprint info here.

2. NOVEMBER CHALLENGE RESULTS: Since our sprint and hence this newsletter is early this

month, complete results can't be announced yet for the popular November Thanksgiving challenge. This was our fifth annual running of a Thanksgiving challenge and it proves to be a popular tradition among our members. We'll have complete results in the next newsletter or you can check after the 10th on the challenge results page.

3. GENERAL CLUB NEWS: - The big news is that the NAQCC membership has passed the 3,000 mark. On November 23rd we assigned number 3,000 to Vince WB2FYZ. Not bad for a club whose founders thought maybe would garner 50 or so members. Even more remarkable than exceeding the founders' expectations is the size of the club compared to other clubs. Obviously some CW clubs are larger because they draw from QRO operators as well as QRP ops. Many QRO ops never operate QRP, and a few even despise the idea of QRP. Likewise QRP clubs draw from ops who only use phone or other digital modes as well as those who use CW, making a larger base from which to draw. I believe (without statistics at hand to back it up) that the NAQCC is the largest QRP club devoted strictly to CW, and/or the largest CW club devoted strictly to QRP activities. Thanks to our members for making it so.

- As you saw in the contents above or will see below, this issue contains part II of the KX-1 Kit Project. Just as a note here, Mike KC2EGL is still in the work force as a postal employee, and thus we have to fit our project around his work schedule and can't give specific dates in advance when we will be continuing the project. However we do hope to be able to have an installment of the project in each of our newsletters until it is completed and tested on the air.

- Let's take a look at our club giveaways in a summary here so you'll know what is available currently for you to aim at.

1. Gregg WB8LZG's handsome K1/K2 tuning knob inserts. There are several of them being awarded to those members who qualify by applying for TWO of our club awards as outlined on the giveaways page and in the awards section of the web site. So far K4PBY has earned one of the two awards, and will win a knob insert when he qualifies for the second award.

2. A RockMite 40M transceiver kit donated by club president Tom WY3H on behalf of the many members who have made monetary donations to the NAQCC. Also included are all the extra parts to make it into a complete rig. It will go the person making the most mW QSO's in our January mW challenge.

3. A set of crystals for the RockMite donated by Rich N4ESS. They will allow the winner of the RockMite to have 11 different frequencies available on 40M.

4. Two further sets of crystals donated by Rich N4ESS. 24 frequencies in all in each set. They are HC49 type crystals, the same as used in the RockMite and also used in many other ham projects. There are crystals included for all the CW bands from 160M through 10M including the WARC bands. With all the giveaways and club activities of late, we haven't finalized plans for giving these away, but as soon as we do, it will be announced in the newsletter.

There are also tentative plans for other giveaways that we can't announce as yet. Many of these are only possible because of your generous monetary donations, and of course by the actual prize donations of members.

Complete giveaways details here.

- WANTED - Suggestions for upcoming sprints and challenges. Do you have a favorite challenge or sprint special award from the first 4+ years of the NAQCC? We're planning our

challenges and sprint special awards for 2009 right now and invite you to take place in the process. Just review the challenge and contests/sprints section of the web site to see what we've done so far, and if one particularly strikes your fancy, let us know about it, and we'll re-run it in 2009. Or if you have a completely original idea for a challenge or sprint special award, let us know about that as well. If you pick a past one, please tell us what month and year it is from. Contact our club email address **NAQCC33@WINDSTREAM.NET** with the subject "Challenge Suggestion" or "Special Award Suggestion". If none are received before December 20, you'll have to put up with what WY3H and K3WWP decide on for the coming year. Thank you.

3a. KX-1 PROJECT - PART II: - By Tom WY3H - Outside of CW operation perhaps there is nothing that represents the heart of Amateur Radio as home brewing (hey, we're talking radio gear, not liquid refreshments - that can come later) and we must also include kit building.

Recently two NAQCC members, our V.P, John, K3WWP, and Mike, KC2EGL, decided to get in touch with their radio "roots" by building an Elecraft KX-1.

Now years ago, a home brew rig could be constructed almost entirely from parts found in any respectable operator's junk box. Most were "one-tube" jobs and, being "real radios," they "glowed in the dark". The impromptu rigs could be surprisingly effective - and a whole lot of fun. A surprising number are still heard on the air today.

However, almost needless to say, times have changed. Simplicity is somewhat relegated to history. We live in the age of digital technology replete with CMOS components and mounds of small parts that go into one transceiver. Such is the case with the KX-1. However, most anyone will agree that today's radios are a far cry from those tube rigs of yesteryear. They are more energy efficient, more stable, have "dead-on" frequency, require little or no warm up time, they have features not even dreamed about by some of the old time hams, and most important, they are light, rugged and completely portable.

After Mike acquired an Elecraft K-2, he thought it would be nice to have a KX-1 to take to remote operating sites or for general portable (mobile) use. Mike wisely decided to enlist the aid of John, K3WWP to help him with the ambitious undertaking. When the kit arrived Mike drove from his home QTH in Brookville, Pa. to John's house in Kittanning. They eagerly opened the box and the first step was to inventory the 200 or so small parts that comprise a KX-1.

Kit part inventory is a critical first step in any such project. And as Mike and John discovered, the task is not always as simple as it seems.

A careful inventory indicated that two small, but non-critical parts seemed to be missing, a small screw and an equally small pin. However, after removing a battery clip from a hermetically sealed plastic bag, the missing parts were discovered "hiding" in the clip.

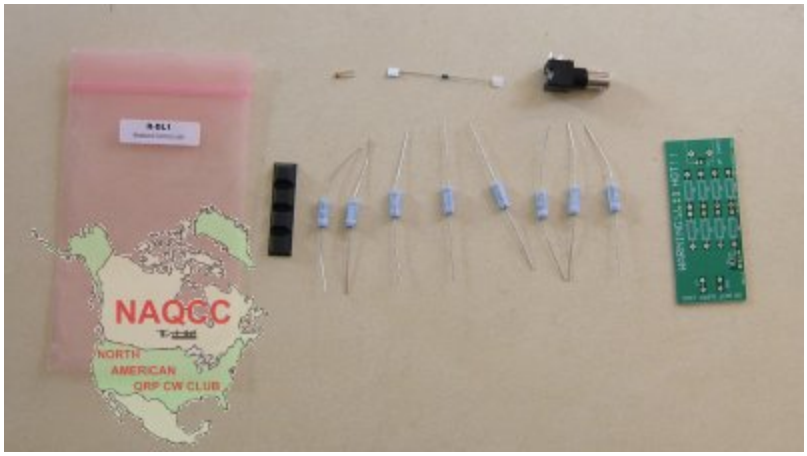
With the parts now inventoried and meticulously separated in several empty egg cartons (a great way to store and separate small electronic parts). Construction was about to begin. John will pick up that part of the story, however, there is one final note of interest and encouragement to anyone thinking of building their first kit.

John's "work shop" does not consist of a fancy workbench with multiple electrical outlets, and shelves full of specialized test equipment. No, kits like the KX-1 do not require elaborate test equipment. For almost all of the testing all that's needed is a simple, low cost, multimeter and a simple dummy load*. Later, a final alignment of the KX-1 will be done with John's Kenwood 480 transceiver.

It may also be a good idea if you're handling CMOS components to invest in an anti-static wrist strap and perhaps a grounded-tip soldering iron (I got my iron from Radio Shack for $8.99). By the way John's "workbench" is a simple folding card table set up in his dining room. He added a small goose neck lamp and of course, a few simple hand tools, such as needle nose pliers and small nippers, a manually operated solder vacuum and a few screwdrivers. Today's kits aren't "simple" when compared to home brew tube rigs of several decades ago, however, building them is not a complicated process - it's time consuming, but not necessarily complicated.

*Mike and John are building two Elecraft dummy loads kits.

Mike KC2EGL showed up at my (K3WWP) house early on Saturday, November 29th just about the time I finished up my daily NAQCC chores along with my personal web site updates. He had his two dummy load kits with him. Those would start our work for today.



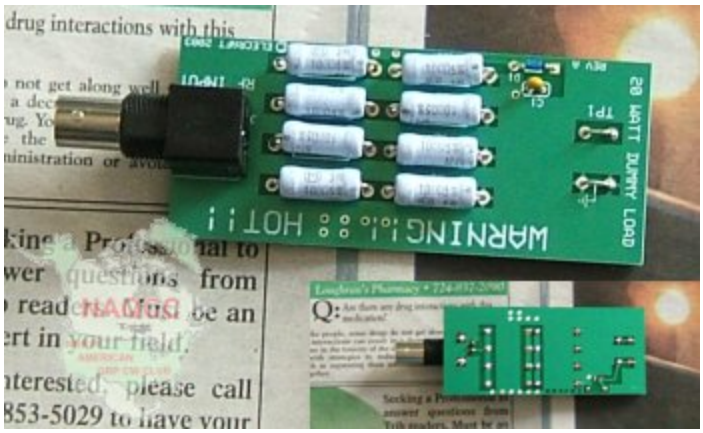
We spread the parts from the first of the two kits out on the table to be sure everything was there and in good shape. Everything was OK, so we moved on.

We set up our working light, soldering iron, a newspaper to protect the card table surface from stray solder, and a damp paper towel to keep the soldering tip clean.

Here's a historic moment in our project. It's Mike making the very first solder connection, fastening the BNC connector to the printed circuit board.

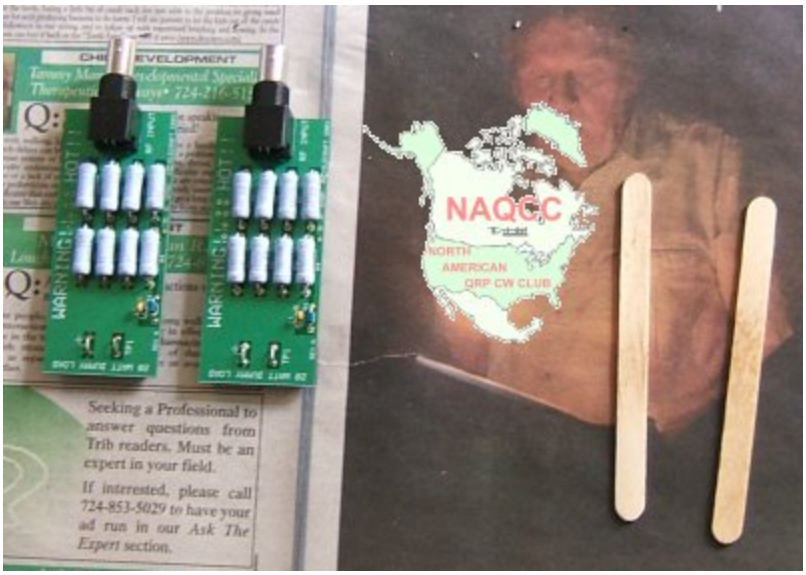
Construction of the board went smoothly. The only thing worth mentioning in the process is it took Mike a couple solder connections to get used to using the right amount of heat and solder. That's probably one thing that everyone dealing with soldering for the first few times needs to get used to. After that, it becomes second nature. The only part that needed any minor special attention was

the diode used to pick off the RF voltage from the dummy load for measurement. Of course polarity of the diode had to be observed, but that was easy because the ends of the diode were clearly marked as was its location on the board. Also I told Mike that this solder joint had to be made quickly since diodes are more sensitive to heat than any of the other parts on the board.



After the final step of mounting the 4 rubber feet to the board, we wound up with this neat little unit. The top and bottom views (before mounting the feet) show clearly that Mike did a great job on his first complete printed circuit board.

We took a break in the project to go work some DX in the CQWW DX Test, then got back to construction.


NAQCC
NORTH AMERICAN QRP CW CLUB
Seeking a Professional to answer questions from Trib readers. Must be an expert in your field.
If interested, please call 724-853-5029 to have your ad run in our Ask The Expert section.

With one board under his belt, Mike zipped through the second board quickly, and we wound up with these two nice looking units, one of which will be used with Mike's K2, and the second with the KX-1. If you have any amount of curiousity whatsoever and don't already know, the popsicle sticks are not remants of our lunch, but are a 'vital' part of kit construction. Being approximately 1/16 inch thick they are an ideal spacer for mounting the power resistors that distance above the circuit board to prevent the heat from the resistors from damaging the board when the unit is in use.

With that, we quit for the day so Mike could get home and do some Christmas decorating.

Mike returned Monday morning, December 1st to continue work on the project. We planned to build the Antenna Tuning unit with the thought in mind, as with the dummy loads, we'd start with the smaller accessory boards for Mike to get some experience working with the different parts before tackling the main KX-1 board. That turned out to be a good idea as the ATU board contained a good sampling of most of the components involved in building the main board.

The first parts to be mounted were the 7 relays that switch in and out the various combinations of caps and coils to do the actual 'tuning' of the antenna. All seven were mounted on top of the board which was then turned over on a flat piece of wood to hold the relays against the board while soldering them. As with many of the parts with multiple leads, the procedure was to solder just one of the leads, then check to see the part was firmly seated on the board before soldering the other leads. In this case six of the seven came out just fine, but one had to have its one pin heated again

to re-position it solidly against the board. The plastic lid from a butter container is a handy thing in which to catch and store the excess lead length of components as they are cut off. The diagonal cutters shown did not cut the leads as close to the board as possible, and we wound up at Radio Shack to purchase a pair of flush cutting 'dikes' which worked much better as it is very important in working with such compact units as the KX-1 to keep everything as close to the board surface as possible.

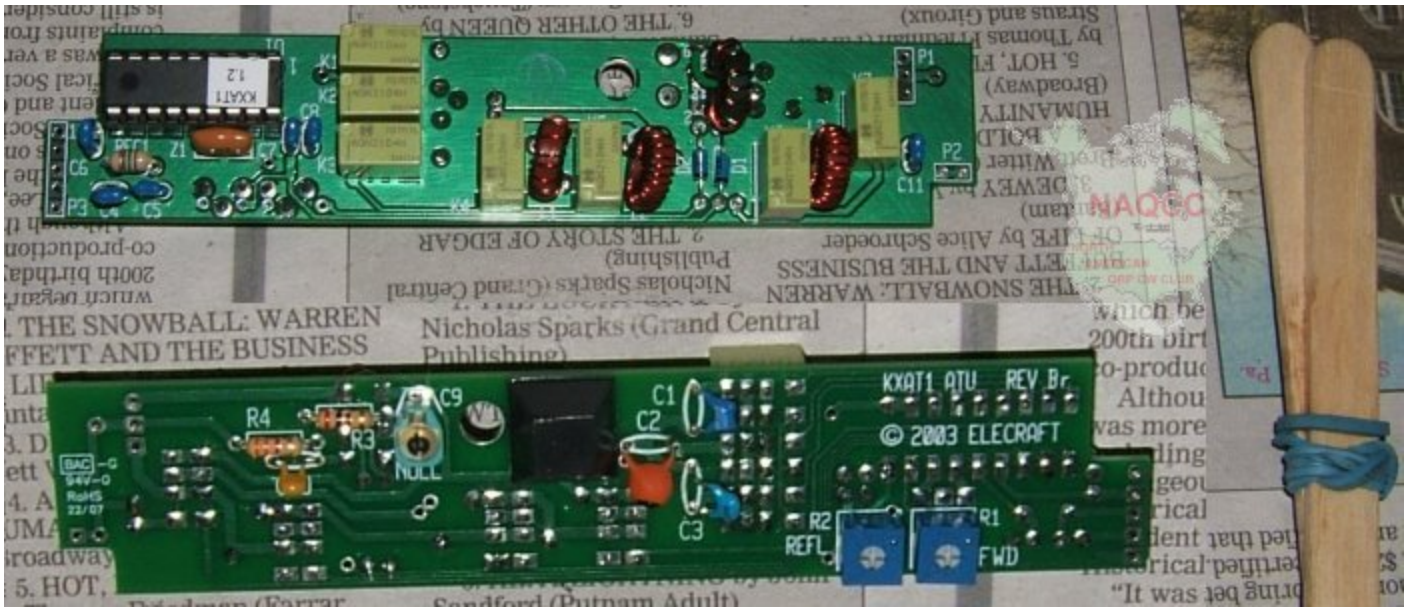
After the relays were soldered in (a total of 56 solder connections), an assortment of other parts were installed following either the same procedure as used with the relays or in the case of components with just two leads, mounting them on the board, bending the protuding leads slightly to hold the part in place, making the solder connections, and trimming off the excess lead lengths. The parts connected here included an IC socket, some resistors, diodes, a ceramic resonator, variable resistors, an RF choke, a trimmer capacitor, and capacitors. Some parts as shown were mounted on the bottom of the board. Most of that was straightforward. We had to be careful with the ceramic resonator (Z1 near the IC socket) as it is fairly heat sensitive and had to be soldered quickly. By this time however Mike had become so proficient at soldering that was no problem. We did pause briefly between each of the 3 solder connections though, just to let the resonator cool a bit. Better safe than sorry as the saying goes. Mounting 3 of the caps on the bottom (C1, C2, C3 near the middle) was also a bit tricky as they had to be mounted slightly above the board so they could then be bent down against the board at a 45 degree angle or so to keep them from sticking up too high.

Next came a procedure that I had only done once or twice in my life, and Mike had never done - winding toroids. We followed the instructions exactly (or so we thought) and got the first one wound. You can see how Mike was concentrating on the winding. The inset shows the toroid after Mike finished it. Then the leads had to be trimmed to 1/2 inch and 3/8 inch of the enamel had to be removed. That proved to be a bit tricky. There are several ways of removed the enamel. We

decided to try the heat method. We held the toroid in a clamp improvised from our two popsicle sticks and a rubber band, then applied a match to the end of the wire which burned off the enamel. Then (remember the picture in the previous installment?) the sandpaper was used to clean the ends of any remaining enamel or residue. When that was all done it turned out the windings were done in the wrong direction as we found out when trying to mount it on the board. Of course that wouldn't matter as far as inductance goes, but it was just too awkward to mount it in the tight space with the leads exiting the toroid in the wrong direction. So Mike unwound it and did it again in the right direction. After it was corrected and mounted, Mike moved on through two more toroids, each with more turns (17 and 25) than the first 12 turn one.

A final toroid winding involved making a transformer. The previous ones were simple inductors. The transformed involved a double winding consisting of a twisted pair of wires. That went smoothly, but the stripping of the ends was a little more tricky since the manual advised against using heat since it may melt more of the enamel than needed and short the twisted pair together. So Mike laboriously used just the sandpaper to strip the 4 leads. On the transformer it was also suggested to tin the leads before installing it. We used our makeshift clamp to hold the toroid while Mike tinned all the leads. Finally all the toroid work was completed and provided some good practice for the later toroid work in the kit.

That was pretty much it except for putting the IC microcontroller in its socket. It is static sensitive so Mike made sure he discharged any static from his body by touching the metal legs of the card table and the metal lamp before proceeding. The leads on the IC were bent out just a little too wide to go in the socket, so I showed Mike how to bend them all at once by using the flat surface of our little board. After they were straightened, the IC went in smoothly. Here's a top and bottom view of the final product with our improvised popsicle stick clamp shown alongside.



With time out for lunch and a couple other chores, building the ATU took up most of the day. Importantly though, Mike picked up a lot of experience with various components and techniques. I see him as a lot more confident now than when we first started on our first board.

Next, on a yet to be decided day, we'll build the 8030 accessory board, then after that, get started on the main KX-1 board.

NOTE - This series of KX-1 project articles and included pictures are the exclusive property of the NAQCC, and may not be copied in whole or in part by anyone. You may link to this entire newsletter if you wish, as long as the NAQCC is given full credit as the source of the information and pictures.

5. CW CARTOON OF THE MONTH: Let's take a comedy break now courtesy of Dick Sylvan W9CBT. Dick has been a long-time QRP/CW operator. One of his many talents is being a cartoon artist, and he is supplying a cartoon each month for the newsletter. The NAQCC is very honored to be one of just two organizations to feature Dick's cartoons. In addition to our newsletter, Dick's cartoons appear monthly in The K9YA Telegraph, an on-line only Ham Radio E-zine where he is the staff cartoonist. Dick has also authored a book entitled "Hi Hi - A Collection of Ham Radio Cartoons" available via his web site. A new cartoon will be appearing in each of our even-numbered newsletters.

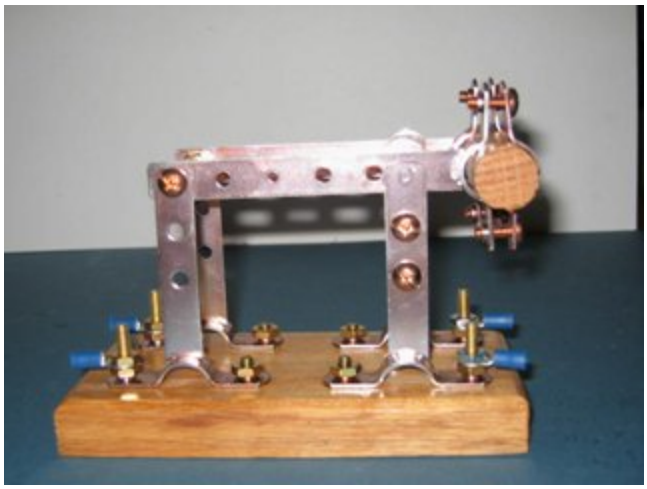
QRP QRP

5. MEMBER NEWS: Send your news items to our news editor Paul KD2MX at **KD2MX@ARRL.NET**.

- **From John K3WWP #0002 -** Although I only made a few QSO's in the CQWW DX Test this year, it provided some fun on Saturday morning. As mentioned in the KX-1 article above, Mike and I took time out to check into the Test. I handed him the keyboard and he logged while I worked stations. Having never been involved in anything at all but a strictly single op operation, that was a thrill and relaxing to have someone log for me. I just wish conditions could have been better so we could have worked a lot more stations.

- **From Mark K8LD #2499 -** A Quick and Easy Knife Switch - After using coax for thirty years or so I decided to change the feed-line to 450 ohm ladder-line. Being a stickler for safety I always disconnect my antenna when I'm not on the air. It was no problem when I worked with coax switches but finding a knife switch for the ladder-line wasn't so easy. After surfing the internet for an hour or so I could not find one that was adequate. So I thought, why not build one?

Sure enough, my local home supply store had just what I needed: copper plumbing hangers called Milford hangers at $.99 a piece. The only extra hardware that was required was some 10-32 nuts and bolts. It was simply a matter of cutting the hangers to size and doubling up the front two pieces with a washer used as a spacer in between. A scrap of oak for the base and a small length of oak dowel rod for the handle put me in business after an hour or so of measuring, drilling and cutting. Here are a few jpegs of the results.



- **From Roger W6SQQ #2139 -** Nov.11, 2008 - It was 7:25Z at the home QTH in Orange, CA and I was yawning and thinking seriously about hitting the sack. The K3 was listening on 7.041 and not hearing anything but low level noise, so I thought "Maybe one last CQ to stir the pot and see what floats to the top." Checked power, 5 watts; checked antenna tune, 1.2:1; selected the Navy Flame Proof, and called a couple of 2x2 CQ's. Wait! That is a very weak signal in there. (Come on, K3, do your stuff.) Out of the S1 noise level popped a call: WB5FKC, RST about 329C. We exchanged the usual info, I found Chris was not a member of NAQCC, FISTS or SKCC. There was QSB, and a little QRM, but because of a slight chirp on his signal, and the magic K3, I had 429C copy. We exchanged power levels and Chris dropped his bombshell on me. He was running a homebrew 50mw rig, to an inverted vee. Yep, QRPp from El Paso, TX. We chatted for about 20 minutes and Chris said it was his first QRPp ragchew. Now, I'm kind of embarrassed that I was running a QRP KW at 5 watts. Moral: Don't give up on the weak ones.

- **From Tom AA8XX #222 -** I have to tell someone! I had just put up a 30-meter full size loop and was calling CQ when I made a contact with VE2PID, Pete. I heard that he was running 5 watts so I asked him to wait and went down to 25 watts, then 5 watts, then 3 watts, and finally to only 1 watt. Pete is in Sherbrooke, QC and I know its not a big deal for some of you guys but for me it was fantastic. My J38 and I had a lot of fun. I now have a better 110 ft wire that I will start using and will try and be back here to tell everybody how it works.

The publication of our next newsletter will be announced via email to all members for whom we have a valid email address unless they specifically have unsubscribed from the email.

Unless otherwise credited, all items are written by K3WWP.

If you came directly to this newsletter, we invite you now to browse the NAQCC Web Site.